Amendments to the Specification:

The Paragraph beginning at Page 9, lines 14-17, is to be amended as follows:

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings,

Figure 1A is a schematic perspective view, partially cut away, of a unit cell of a printhead according to the invention;

Figure 1B is a schematic sectioned perspective view of a unit cell of a prinhead according to the invention;

The Paragraph beginning at Page 11, lines 5-32, through to Page 13, lines 1-2, is to be amended as follows:

Bubble Forming Heater Element Actuated Printheads

Figure 1A shows a nozzle of this type. The nozzles, ejection actuators, associated drive circuitry and ink supply passages are formed on and through a wafer using lithographically masked etching techniques described in great detail in USSN 10/302,274. In the interests of brevity, the disclosure of the '274 application is incorporated herein in its entirety. For convenience, the reference numerals on Figures 1A to 7 accord with the reference numbering used in '274. Corresponding features of the embodiments shown in Figures 8 to 20 do not necessarily use the same reference numerals.

The unit cell 1 is shown with part of the walls 6 and nozzle plate 2 cut-away, which reveals the interior of the chamber 7. The heater 14 is not shown cut away, so that both halves of the heater element 10 can be seen.

Figure 1B shows the liquid opassage that extends from each of the chambers 7 to the oppositie side of the wafer substrate 21. The liquid passage is formed by the hole 31 through the dielectric material of the interconnect 23 and into the monolithic wafer 21 and a supply passage 32 extending from the liquid supply side partially through the monolithic wafer 21. In combination, the hole 31 and the supply passage 32 provide the liquid passage that establishes a fluid connection between the chamber and the ink supply (not shown).

In operation, ink 11 passes through the ink inlet ~~passage~~ hole 31 (see Figures 2 to 7) to fill the chamber 7. Then a voltage is applied across the electrodes 15 to establish a flow of electric current through the heater element 10. This heats the element 10, to form a vapor bubble in the ink within the chamber 7 to eject a drop of ink.

It is generally beneficial to increase the nozzle densities on a printhead to enhance the print resolution. MEMS fabrication of the nozzles on silicon wafer allows very high nozzle density. However, the wafer is typically about 200 microns thick with the nozzle guards, ink chambers, ejection actuators and so on occupying a layer about 20 microns thick on one side. These dimensions are indicated generally by A and B on Figure 1A.

Figures 2 to 7 show the unit cell with the ink chamber 7 and heater element 10 removed for clarity. Ink is supplied to the chambers by supply passages 32 extending to the opposite side of the wafer where they open to a supply of ink. It would be convenient to etch these supply passages 32 from the nozzle side of the wafer as this side will be subject to etching and deposition to form the nozzle structures. Unfortunately, it is not practical to form the ink supply passages from the nozzle side of the wafer. The entire supply passage 32 would have to be filled with resist while the nozzle structures were lithographically formed. Stripping the resist out of a 200-micron deep passage of resist would be prohibitively difficult and time consuming.

Forming the ink supply passages from the supply side of the wafer through to the nozzle side presents its own difficulties. These problems are schematically illustrated in Figures 2, 3 and 4.

Referring to Figure 2, the ink supply passage is etched through the wafer 21 to the CMOS metallisation layers of the interconnect 23. The ~~inlet~~ hole 31 in the interconnect 23 provides a fluid connection between the supply passage 32 and the nozzle chamber (not shown) to be formed on the passivation layer 24. Guard rings 26 prevent ink from diffusing from within the ~~inlet~~ hole 31 to the wiring in the interconnect 23 and the CMOS drive circuitry 22 between the wafer substrate 21 and the interconnect 23. Unfortunately, the precise alignment of the masking on the supply side of the wafer with the ink chambers of each nozzle on the nozzle side is difficult. At present, the best equipment available for aligning the mask has ±2 microns accuracy. If the drive circuitry 22 is too close to the ~~inlet~~

<u>hole </u>31, a portion C of the circuitry 22 risks damage by the etchant due to misalignment of the <u>supply </u>passage 32.

The Paragraph beginning at Page 13, lines 15-25, is to be amended as follows:

Referring to 5, 6 and 7, the present invention addresses this by etching the ~~inlet~~ <u>hole</u> 31 through the interconnect 23 and into the wafer 21 and then etching the ink supply passage 32 from the other side of the wafer 21, while ensuring that the ink supply passage is sufficiently wider than the ~~inlet~~ <u>hole </u>31 to account for the inherent tolerances of the etching process. As best shown in Figure 5, the plasma does not get the opportunity to track along the interface and damage the CMOS drive circuitry. As the inlet hole 31 is relatively shallow, the removal of the resist is not overly difficult. This permits a more compact overall design and higher nozzle packing density. Using this technique, the sizes of the ink conduits are also relative small. Typically, the width of the inlet hole 31 is between 8 microns and 24 microns, and the width of the supply passage 32 is between 10 microns and 28 microns.